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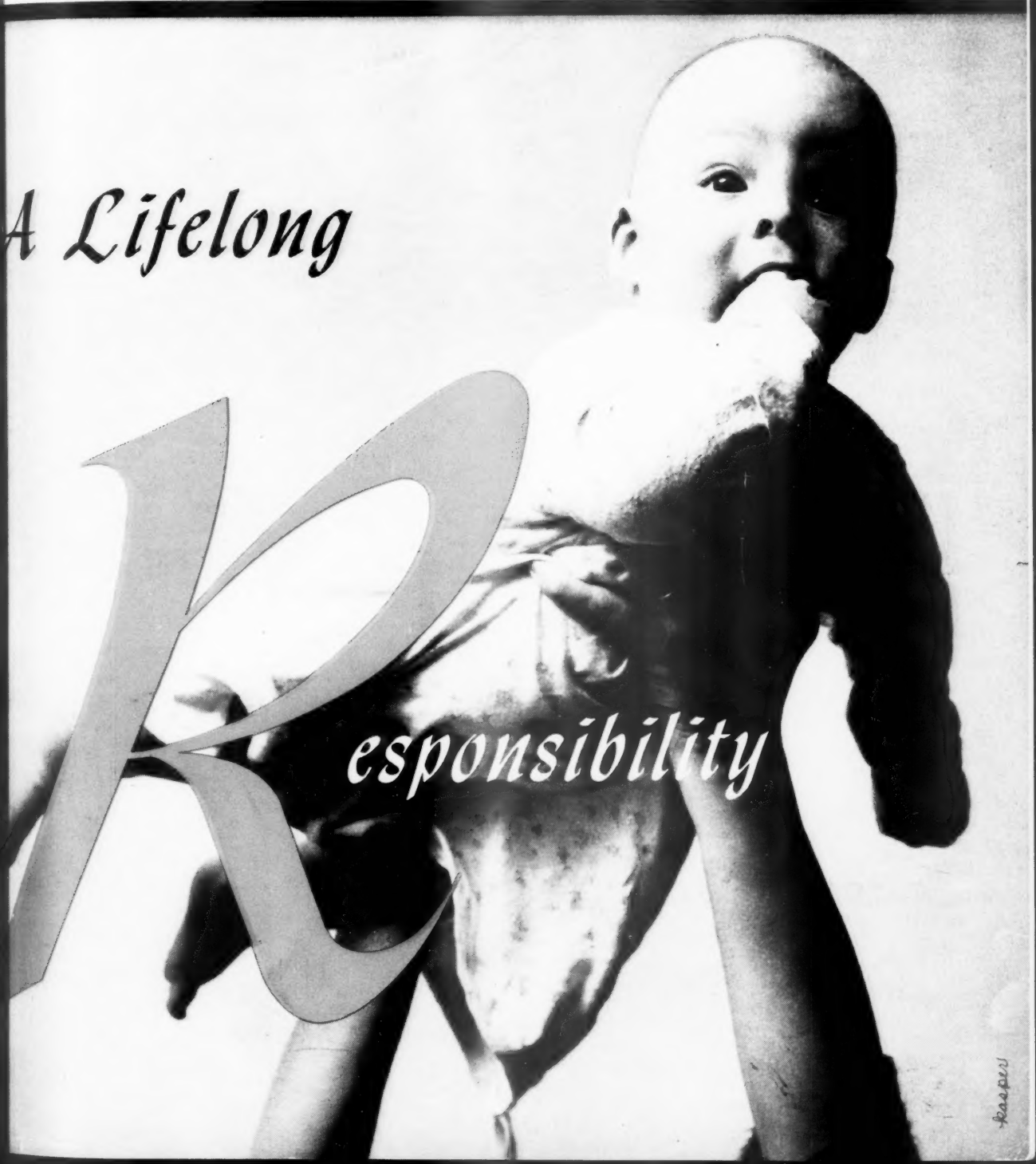

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TIC

A MAGAZINE FOR
DENTISTS
DENTAL HYGIENISTS
DENTAL ASSISTANTS

Editor,
Joseph Strack
Contributing Editors,
Arthur H. Levine, D.D.S.
Joseph Murray, D.D.S.
Art Director,
Edward Kasper

July 1960 Vol. XIX No. 7

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THE COBALT-CHROMIUM PARTIAL DENTURE

A CLINICAL SURVEY

JOHN N. ANDERSON, M.D.S., L.D.S.
Senior Lecturer in Dental Prosthetics
Dundee Dental School, University of St. Andrews

JOHN F. BATES, M.Sc., B.D.S.
Lecturer in Dental Prosthetics
Turner Dental School, University of Manchester

Editor's Note: TIC is privileged to present this original and significant report through the gracious cooperation of the editors of the *British Dental Journal* and the authors of the article.

When one looks for proof of the many theories of partial denture design, there is little reported evidence dealing with the long-term clinical effects of wearing partial dentures of the various types.

Hildebrand (1937) reported on 70 patients treated with bridges, or with partial dentures which were tooth-borne, tissue-borne, or tooth-and-tissue-borne. Anderson and Lammie (1952) gave results of the examination of 274 patients who had worn various types of partial denture. Koivumaa (1956) described in detail the damaging effects of the simple acrylic "gum-stripper" denture which rests only on soft tissues. Bates (1956) reported details of a survey of 40 patients who were wearing skeleton dentures. Storer (1958) in his examination of 566 patients reported on the relationship between denture design and patient tolerance of the denture.

In the past ten years, the use of cobalt-chromium alloys for skeleton dentures has developed rapidly. It was felt, therefore, that the time was now opportune to assess the effects upon the oral tissues of wearing such dentures, and to try and relate these effects to design and technique.

Material

In a clinical review of this kind, a large sample is necessary. Accordingly, arrangements were made for the two writers to examine together all the skeleton dentures which had been provided in the Dundee and Manchester Dental Hospitals. Most of the skeleton dentures were of cobalt-chromium alloy, but a small percentage were of white or yellow gold. Some of the

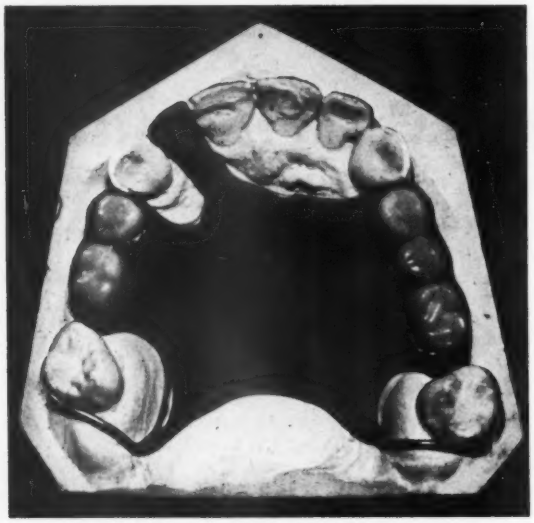

Fig. 1. "Every" type denture.

patients wearing lower skeleton partial dentures at Manchester had been supplied with an "Every" (Every, 1949) upper partial denture (fig. 1) and it was therefore opportune to review these at the same time. Some of these dentures were made in cobalt-chromium alloy and others in acrylic resin.

To provide a basis for clinical comparison a number of patients were asked to attend who had been provided with acrylic dentures with or without clasps and occlusal rests.

Results

Table I shows the response from patients.

TABLE I.—RESPONSE FROM PATIENTS

	Total patients	*Patients examined*	*Replied to questionnaire*	*No reply*
Dundee	184	122	17	45
Manchester ..	277	205	6	66
Totals	461	327	23	111
Percentage ...	100	71	5	24
Patients untraceable or deceased:			Dundee	33
			Manchester	9

Table II shows the numbers of the different types of denture which were examined. This table also gives the length of time which had elapsed since the dentures were provided.

Wearing of Dentures

The patients were asked how frequently they wore their dentures. Often they were reluctant to say that the dentures were not being worn. After clinical examination, particularly of the occlusion, and on asking the patient to insert and remove the denture, a more accurate statement of the amount of wear was generally obtained.

Table III and fig. 2 shows to what extent the dentures examined had been worn. The Kennedy classification has been used:

Class I Bilateral free-end saddles.
Class II Unilateral free-end saddle.
Class III Unilateral bounded saddle.
Class IV Anterior saddle. No modifications.

[*Classes I, II, and III are modified according to the number of additional spaces or saddles. To simplify the figures only modification one, and two or more modifications were recorded.*]

Wearing was recorded as constant, spasmodic, or never. Constant wearing denotes that the denture was worn all day, including mealtimes. Many patients in this category wore their dentures at night also. Spasmodic wear indicates wearing for part of the day, for meals only, or for a portion of each week. If the denture was only worn occasionally it was classed as not worn. Only recent wearing was recorded, no attention being paid to the initial period of wear immediately after the denture was fitted. A significant number of dentures had been worn for months or even years and then discarded for diverse reasons. These have been recorded as "never worn" although they had several useful years of service.

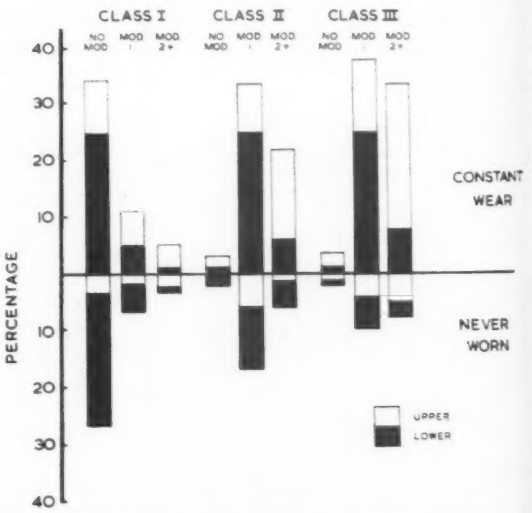

Fig. 2. Comparison between dentures worn constantly and never worn in different Kennedy classifications (excluding dentures worn spasmodically).

It will readily be seen that the greatest percentage of "never worn" dentures was in Kennedy Class I. In this class, in both upper and lower jaws, more than half the dentures provided were not worn constantly. Even where spaces existed in addition to

TABLE II.—DISTRIBUTION OF DENTURES EXAMINED IN TYPES AND IN YEARS SINCE THE DENTURE WAS PROVIDED

	Plate						*Every*			*Skeleton*					
	Upper			*Lower*			*Upper*			*Upper*			*Lower*		
Years worn	2	2–4	4	2	2–4	4	2	2–4	4	2	2–4	4	2	2–4	4
Dundee	25	34	9	22	12	1	0	0	0	10	4	2	24	27	9
Manchester ...	23	8	1	3	2	1	35	5	0	43	8	1	131	43	0
Totals	48	42	10	25	14	2	35	5	0	53	12	3	155	70	9

TABLE III.—DENTURES ARRANGED IN KENNEDY CLASSIFICATION SHOWING THOSE WHICH HAVE BEEN WORN CONSTANTLY, SPASMODICALLY, OR NEVER

	Class I			*Class II*			*Class III*			*Class IV*		
	No. Mod.	*Mod. 1*	*Other Mod.*	*No. Mod.*	*Mod. 1*	*Other Mod.*	*No. Mod.*	*Mod. 1*	*Other Mod.*			*Wear*
Dundee	5	5	2	1	5	13	2	12	18	3	Upper	Constantly
	15	1	0	0	15	2	1	14	4	2	Lower	
	1	3	0	0	1	1	0	1	1	0	Upper	Spasmodically
	3	1	0	0	3	1	0	4	0	0	Lower	
	5	2	3	0	1	2	0	3	10	0	Upper	Never
	17	6	2	2	4	5	0	7	0	0	Lower	
Manchester	13	7	4	1	5	8	1	22	30	5	Upper	Constantly
	33	9	2	1	17	5	1	32	9	1	Lower	
	3	2	0	1	2	3	0	2	2	0	Upper	Spasmodically
	12	1	1	0	10	1	0	1	1	0	Lower	
	0	2	0	0	6	0	1	4	1	0	Upper	Never
	29	3	0	0	10	1	1	4	4	0	Lower	

(Includes replies to questionnaires)

the posterior free-end saddles, a similar percentage of non-wearers was found.

Only five unmodified Class II dentures were examined. Overall in this class, three-quarters of the dentures were worn constantly. When divided between the two jaws, one out of six of the uppers, and two out of seven of the lowers were not worn. Generally, the additional saddle or saddles in the Class II modifications in the upper jaw were anterior teeth, whereas in the lower jaw another cheek tooth was commonly absent. Obviously, aesthetics played a prominent part in encouraging the patient to wear the denture.

Of all the Class III dentures, both upper and lower, approximately one in five were not worn constantly.

All the Class IV dentures (replacing anterior teeth) were being worn constantly by the patient.

One question which was asked routinely was "Do you think your denture is necessary?" In many cases the patient was not convinced of the necessity for dentures, and indeed, in some cases one felt that they had almost been "thrust upon him."

Effect of Partial Dentures on the Mouth

The Mucosa

The condition of the mucosa under cobalt-chromium bars and plates was better than that under any other material. The mucosa was best in those skeleton cases where the denture was worn only in the daytime. Whenever the denture was worn both day and night, the degree of damage was more severe.

The Gingival Margins

The gingival tissues of patients who were wearing skeleton dentures in the daytime only were very healthy. Where patients wore the denture at night or the oral hygiene was poor, some mild gingivitis was observed, particularly where bars crossed the free gingivae. In Class I skeleton partial dentures (Manchester) occlusal support was always placed mesially on the abutment tooth (fig. 3). This necessitated a separate strut from the denture and caused the lingual gingiva of the abutment tooth to be enclosed on four sides. This small area of gingiva was seldom stimulated sufficiently by the tongue and a mild gingivitis was noted, even in mouths where the gingivae were normal in other areas.

All connectors in cobalt-chromium alloy showed better resistance to tartar deposition than those of yellow or white gold. Most of the dentures were still highly polished after several years' wear. In a few mouths, however, where tartar deposition was heavy, a thin layer of very hard calculus covered almost the entire denture surface, even when the underlying metal was highly polished. Both yellow and white gold castings showed a marked deterioration in surface.

TABLE IV.—RETENTION DISPLAYED BY THE DENTURES EXAMINED

	Cobalt-chromium (cast and wrought)		*White gold (cast and wrought)*		*Yellow gold (cast)*		*Acrylic dentures (no clasps)*	
	Retentive	*Non-retentive*	*Retentive*	*Non-retentive*	*Retentive*	*Non-retentive*	*Adhesion and interproximal contact*	*Adhesion only*
Upper	50	15	17	12	4	0	24	58
Lower	144	35	12	16	8	4	0	0

Retention

In a large number of the dentures seen, direct retention was found to be poor (Table IV). Often a path of withdrawal could be found along which no positive retention effect, other than slight friction, held the denture in place. Despite this "inadequate" retention, the patient was wearing the denture successfully and very few complained of instability of their denture. Deterioration in retention of cobalt-chromium clasps was, however, less marked than that found in white gold castings.

The type of clasps most used were the circumferential, ring and Roach types C and T.

It was found that the original retention of the plastic "Every" dentures was not maintained, this was particularly so where the patient had insisted on the anterior tooth being "gum fitted." The resulting retention and stability antero-posteriorly left much to be desired. Retention of the single anterior tooth metal "Every" without a flange was very poor. Many patients were wearing the denture only because it replaced an anterior tooth. Where multiple spaces were restored, the metal "Every" with metal contact points and acrylic facial flanges showed adequate stability.

Periodontal Damage

The Class I lower dentures are of special interest, since they form a large percentage of the partial dentures examined and have been considered as "problem dentures." Prosthetists have invented a series of methods of preventing the damage which is said to be caused to the supporting tissues of the abutment teeth.

The sample enabled a comparison to be made between those dentures with mesial and those with distal occlusal rests. The conclusion was that the abutment teeth clasped by both methods were in no worse condition than teeth not clasped *in the same mouth*. After periods of up to four years the difference was not clinically noticeable and the teeth were sound. In only 7 patients wearing Class I dentures had the abutment teeth been extracted. All these extractions were due to caries.

Fig. 3. Mesial occlusal rest with connecting arm to lingual bar.

It was found that resorption of saddle areas had taken place in many cases but this was small in amount. Usually there was no loss of occlusal contact but by heavy finger pressure the saddle did not appear to fit accurately on the pear-shaped pads. In such circumstances it was difficult to establish whether resorption had actually taken place or if the mucosa was simply being squashed.

Most of the dentures were made to mucostatic (alginate) impressions, and re-lining under saddles was only done where an obvious error in the fit of the denture was present on insertion.

Fit of Dentures

It was found that the dimensions of palatal and lingual bars used were sufficient to maintain their shape under service conditions. The general dimensions of the parts were thinner than those of gold but whether in fact these are minimal sizes for cobalt-chromium designs is difficult to assess (Anderson, 1958). Since the Young's modulus (stiffness) of cobalt-chromium is twice that of gold, the bars were more rigid. Whether the dimensions of the parts could be reduced farther with increased comfort for the patient is not known.

No examples of gross distortion of cobalt-chromium clasp arms were seen. Even T-Roach clasps retained their correct position though their retentive action had often been lost. By comparison, white gold clasp arms were frequently bent out of position.

Fractures of Clasps

A large number of fractures of white gold clasps were seen. In general, these occurred where a wrought wire arm had been soldered to a cast occlusal rest. It would appear preferable to join the retentive arm and occlusal rest separately to the denture base and thus avoid overheating the wire during soldering.

For all the cobalt-chromium castings in Dundee,

and the earlier ones in Manchester, the alloy had been melted by oxy-acetylene flame. On these dentures several clasps and occlusal rests had fractured in use. No fractures were found in the more recent dentures made in Manchester using high-frequency induction melting. It would seem that occluded impurities in the oxy-acetylene castings were the main cause of fracture.

Naturally, a proportion of the patients seen wanted some conservation treatment but caries was found under occlusal rests or clasps only rarely, and then it was in patients who had habitually worn the dentures at night. Many teeth had been prepared for rests and in several cases onlays had been used to equilibrate the occlusion. In some cases these covered exposed dentine. The undersurface of the metal onlays was clean and no caries was seen. Most patients with onlays had been particularly instructed to place toothpaste in the "caps" before insertion of the appliance.

The 11 per cent of uppers and 30 per cent of lower dentures "never worn" were examined to see if any common factor could be isolated. Apart from the type of denture (Class I) no other influencing factor could be found. If the dentures were made satisfactorily then the really deciding factor was whether the patient wanted or understood the need for the restoration. This agrees with Storer (1958) in that the patient's tolerance is determined by his outlook and attitude to the treatment.

Where patients had previously worn plastic partial dentures they always stated that the tooth-borne skeleton denture was more comfortable, stability and freedom from tissue coverage being their main comments. This shows the necessity for a comparison of two dentures by the same patient before any real conclusion as regards patient's comfort can be made. Patients are fortunately tolerant beings and find most dentures comfortable if they fit well.

The degree of damage to the soft tissues under the plate dentures examined was not as great as that described in earlier reports. Even under acrylic dentures, the damage was moderate rather than severe, even where the oral hygiene was poor. The chronically inflamed oedematous tissue with thick mucin covering was rarely seen.

In previous reports, the plate dentures reviewed were not necessarily constructed in the same manner as those at present under review. In all plate dentures in this series, care had been taken to cover fully the cingulum areas of anterior teeth (fig. 4), to provide occlusal rests, to carry the denture to the survey line on cheek teeth and to relieve gingival tissues. These points of technique were previously suggested (Anderson and Lammie, 1952) and the opportunity was taken of assessing their value.

The "Every" type denture caused little gingival

Fig. 4. Correct and incorrect trimming of denture round the incisor teeth.

irritation provided that sufficiently large spaces were left round the gingival margins. If insufficient space is left the thickness of the acrylic resin prevents adequate friction being applied to the tissues. Where the "Every" denture was made in cobalt-chromium this effect was less noticeable as the denture was thinner.

The condition of both mucosa and gingivae when a skeleton denture was being worn was better than where a plate denture had been provided. As already noted, soft tissue damage was sometimes hardly apparent on examination.

The survey confirmed the soundness of the advice usually given to patients *that they should not wear partial dentures every night.*

One interesting observation emerged in the relationship of lingual bars to the tissues. In Manchester it had been common practice to fit the cast lingual bar directly to the model with only an 0•001 in. tinfoil relief. In Dundee, all cast lingual bars were well relieved (0•020 in. foil) from the tissues. Patient tolerance of the bar was better when it was placed close to the tissues. It would be expected that such a technique would bring about an irritation of the underlying mucosa. This was seldom seen except where the denture was inadequately braced against sideways movement. With bounded saddles, the bar can be placed against the tissues provided bracing is obtained from all the abutment teeth. With "free-end" saddles, slight spacing is preferred. During the fabrication of a cast lingual bar, slight spacing from the tissues always occurs due to casting inaccuracies. In addition, grinding, sandblasting and anodic polishing all ensure that a slight space is left between bar and tissues, even when no relief is used.

Many cobalt-chromium dentures showed poor direct retention by the clasps. Since good retention (often very positive) was present on insertion, it must have disappeared during the period of wear. There are several ways of explaining this loss of retention. Tooth migration may occur, reducing pressure at contact points between the denture and the

abutment teeth. Lee (1956) mentioned wear of tooth substance under the clasp arm as a cause. On the other hand, Phillips and Leonard (1956) noted no wear of tooth substance in a laboratory test, nor did they report bending or fatigue failure of the clasps tested.

Deformation of the clasp due either to functional stresses or to distortion by the patient in removal or cleaning appears the most probable cause. But since there was no observable spacing of the cobalt-chromium clasps from the teeth (as was seen in white gold) this would not seem to be the explanation.

The general practice for cast cobalt-chromium clasp construction at Manchester was to use not more than a 0•010 in. undercut. In Dundee, a clasp arm of thinner section was used, and this was positioned to engage in a slightly greater undercut. There was no difference in the retentive effect of these clasps after a few years' wear. Retention of both was reduced.

It is interesting to speculate as to the necessity for positive retention provided the movement of the denture is limited to a single path of displacement. From our observations it would appear that positive retention is essential initially, but that "bracing" is more necessary to the patient's continuing satisfaction with the denture.

Even in the free-end saddle dentures (Classes I and II) damage to abutment teeth and gross resorption of saddle areas was not seen. It would appear that provided the saddle covers the maximum area of tissue and as much support as possible is obtained from the teeth, resorption under saddles will not be excessive, nor is a large stress applied to the abutment teeth. From this survey, "stress-breaking" would seem to be unnecessary. In the writers' opinion, many cases where the denture shows poor antero-posterior stability are due to an inaccurate recording of the saddle areas at the impression stage. This is later interpreted as resorption under the saddles. The commonest cause of inaccuracy in free-end saddle areas is lack of good retention between the tray and the alginate impression material.

SUMMARY

A clinical review of patients who had been wearing cobalt-chromium alloy partial dentures was carried out.

Retention and patient-tolerance of skeleton, plate, and "Every" type dentures is compared.

The effect of the denture on mucosa, gingivae, periodontal structures, and caries incidence is discussed.

ACKNOWLEDGMENTS

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SUMMARY BY TIC

Cobalt-chromium partial dentures have earned widespread acceptance.

A survey of patients fitted with such dentures many years ago was made to determine the effects upon oral tissues of wearing such dentures.

The results:

1. The mucosal health was better under cobalt-chromium bars and plates than under any other material.

2. Resistance to tartar deposition was better than that of gold.

3. Deterioration in retention of cobalt-chromium clasps was less than that found in white gold castings.

4. No examples of gross distortion of cobalt-chromium clasp arms were seen. By comparison, white gold clasp arms were frequently bent out of position.

5. Caries was found under occlusal rests or clasps rarely, and then it was in patients who had habitually worn the dentures at night.

TAX ASPECT OF SELLING YOUR PRACTICE

by JOSEPH ARKIN, C.P.A.

The sale of one's practice requires a high degree of careful tax planning. It is extremely important to note that the Internal Revenue Code treats the sale of a business by an individual as a *sale of each of the assets involved.*

In effect, your blanket contract of sale is actually giving rise to several sales for tax purposes. Apportionment of the total contract sales price must be made for each of the assets sold.

There are two major tax-saving devices to consider in the sale of your practice: (1) the capital gain portion which receives preferential tax treatment and (2) the installment or contingent sale basis which allows you to spread the tax on the sale price over several years.

The sale of your patients' accounts and inventory of dental supplies is considered to be ordinary income.

The sale of fixtures, equipment, land, buildings, furniture and similar items used in your practice which were held over six months gives rise to capital gain treatment (or loss). It is important to note that capital gains are reported at only one-half when held over six months, taxed at ordinary rates but subject to a ceiling of 25 percent.

For example, if you receive $2,000 for equipment which was held over six months, which cost $2,000 but upon which depreciation was charged off each year totalling $1,000, you have a $1,000 gain to report on Schedule D of Form 1040. Only $500 is added to your other income, and by use of the alternative method for high income taxpayers, you never have to pay more than 25 percent tax on the total profit of $1,000.

If your fixtures (and other "fixed" assets used in your practice) are sold at a loss, whether or not they were held for six months, the loss is an ordinary loss fully deductible from other items of income. The loss can be carried back to other years as a carry-back loss or carried forward and offset against future income.

Probably the question of goodwill offers the greatest problem. The sale of goodwill by a professional man gives rise to capital gains rather than to ordinary income.

Amounts received under an agreement not to compete are, as such, ordinary income. But if the agreement is primarily a protection for purchased goodwill, and is not severable from that phase of the transaction, the proceeds are taxed as capital gains.

The Internal Revenue Service takes the position that if you are to receive goodwill treatment you should be retiring or relocating elsewhere. If the seller remains active and accepts employment with the buyer after the sale, capital gain treatment is not allowed. Nor will the Treasury permit capital gain treatment for any sale of a covenant not to compete under another name which accompanies the assignment of the firm name.

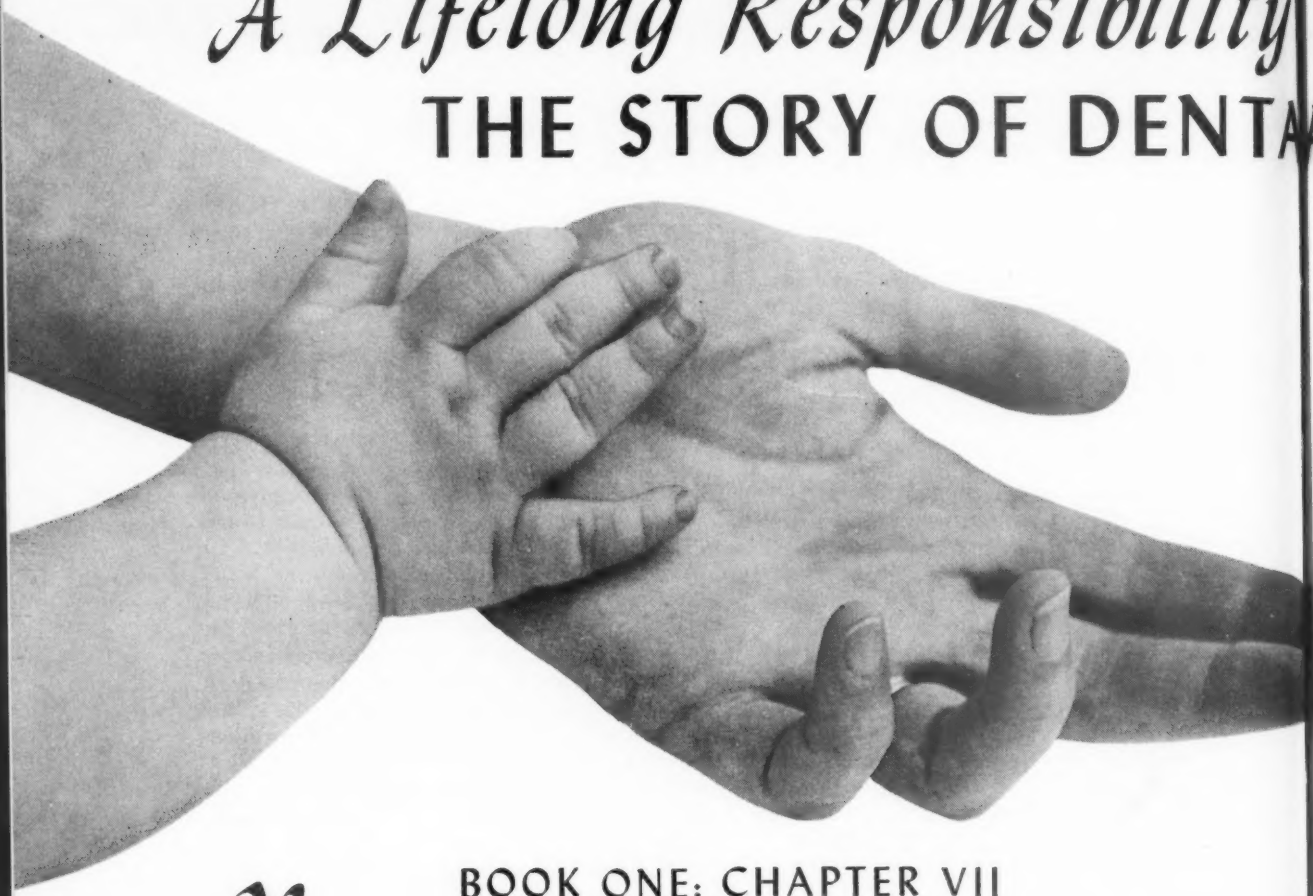
The installment method of sale and the contingent price method (percentage of income over a period of time) offer important methods of saving taxes. You will be able to report income in years when your income, because of retirement, will be lower and when you will be in a lower tax bracket.

The intricacies of these latter two methods of making a sale are many, and if you plan to sell your practice in the near future you would be wise to first discuss the terms of the sale with your accountant or lawyer before committing yourself to the buyer.

Usually the buyer does not suffer any financial loss from your efforts to save taxes and no conflict need arise on this point.

A Lifelong Responsibility

THE STORY OF DENTA



BOOK ONE: CHAPTER VII

Neglect of a child's teeth can handicap the child for life — seriously, even tragically. Exaggeration? Unfortunately, no. Here are how the facts add up.

Susie is six. Her parents decide to save money by not taking her to the dentist. After all, why spend good money on her first teeth? — she'll only lose them anyway. Right? There's plenty of time to think of dentists when she gets her permanent teeth — happily years away.

As every dentist knows, that's the way not to save money, but to sacrifice the child's teeth — not only the first teeth but perhaps many of the permanent ones as well. It also means "saving" pennies for a short time and spending dollars for a long time, for the big dental bills will come later.

This is the way to other things: poor dental health; unnecessary pain and suffering; loss of time from school, work, and leisure; poor personal appearance; perhaps affected general health; maybe neurotic behavior; possibly denial of opportunities in business; and, quite likely, loss of attention from young men that no normal girl should have to experience.

How can all this get started? Like this:

All primary teeth, that is, so-called baby teeth, are necessary for chewing, for good speech and articulation, for maintaining the natural form and symmetry of the face, for maintaining the space needed by the permanent teeth — which are growing directly below the first teeth and will replace them. Now, if the first teeth are lost before they shed naturally, or if they are decayed, or if the gums are diseased, the permanent teeth probably will come in crooked.

Such malocclusion may cause facial deformities; may bring about serious gum diseases later in life; may affect general health by causing the person to avoid certain foods required for adequate diet; and may lead to emotional disturbances.

ARABIAN NIGHTS IN DENTISTRY

ARE FOR CHILD AND ADULT

CHILD or adult, no one wishes to be handicapped by unfortunate physical defects, especially if they affect such an all-important and conspicuous part of the body as the mouth.

Fortunately, even though an adult's oral health was neglected during childhood, she or he can do much to make up for the neglect. Dental restorations—full and partial dentures, bridges, caps—and periodontal treatment can accomplish miracles.

Miracles? Almost, yes; consider these facts again:

Everyone looks at one's mouth. A mouth with decayed teeth or diseased gums, a mouth that is malformed, hardly makes a good impression on others. Indeed, people are often shunned because of such unfortunate handicaps.

Chronic digestive disturbances and vitamin deficiency can, in turn, bring about periodontal diseases, causing destruction of the tissues around the teeth. If not corrected, this will cause loss of the remaining teeth—both good and bad.

Conscious of the unfavorable reactions he causes in others, the dental cripple may develop behavior problems as well. These may include efforts to avoid smiling so his dental defects will not be exposed; withdrawing from the society of others; and brooding over real or fancied loss of advancement in business and over-deprivation of normal relations with the opposite sex.

Thus the unhappy person may suffer physically, psychologically, socially, and financially.

What about the miracle? Good dentistry can alleviate or correct many, perhaps all, of those conditions. Surely miracle enough.

To summarize:

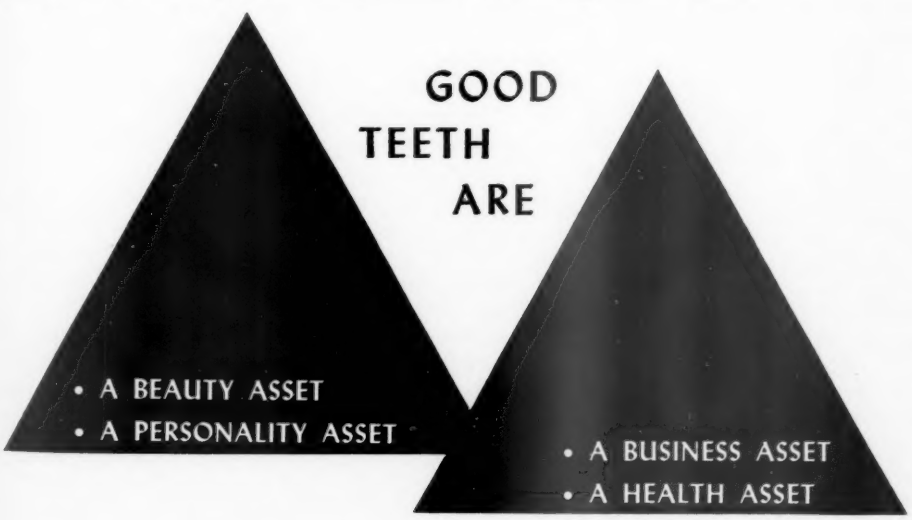
Every adult knows that personal appearance counts heavily in the impression one makes on others.

Such impressions can favorably or unfavorably influence one's future, one's whole life.

A dental cripple is hardly likely to make a good impression on others. He does not even create sympathy, for the dental treatment he needs is available to all who have the will to obtain it.

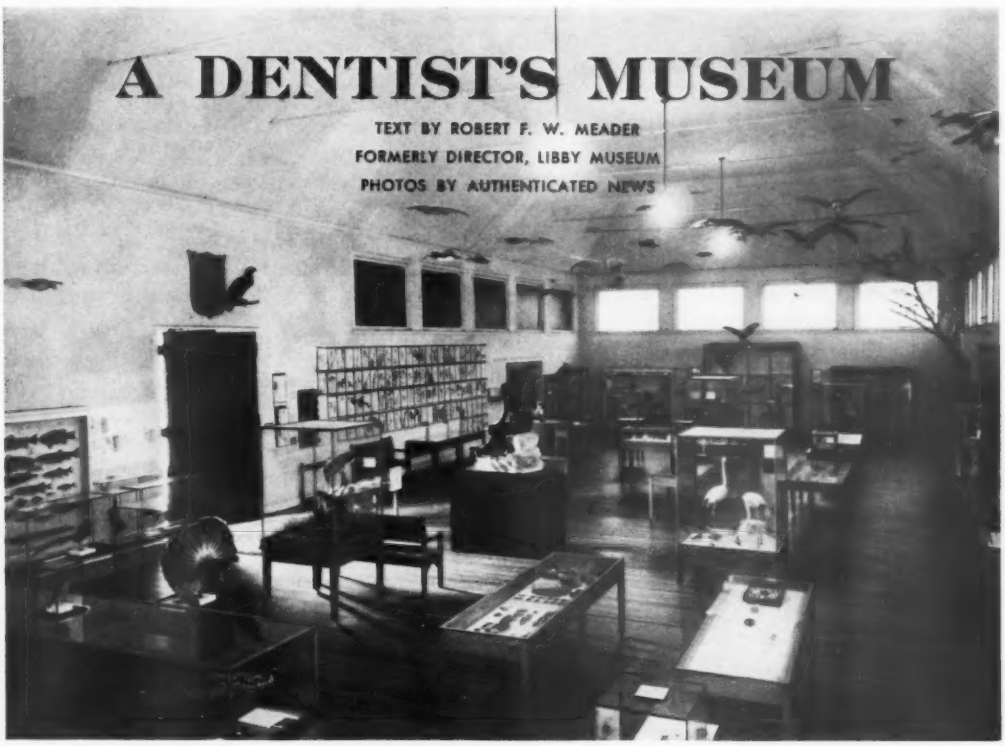
TODAY EVERY INTELLIGENT ADULT KNOWS THAT GOOD TEETH ARE: • A HEALTH ASSET • A PERSONALITY ASSET • A BEAUTY ASSET • A PSYCHOLOGICAL ASSET • A BUSINESS ASSET—AND THE PRODUCT OF GOOD DENTAL CARE.

That care, like all health care, is a lifelong responsibility that none of us should try to escape if we wish to enjoy the many benefits of lifelong dental health.



A DENTIST'S MUSEUM

TEXT BY ROBERT F. W. MEADER
FORMERLY DIRECTOR, LIBBY MUSEUM
PHOTOS BY AUTHENTICATED NEWS



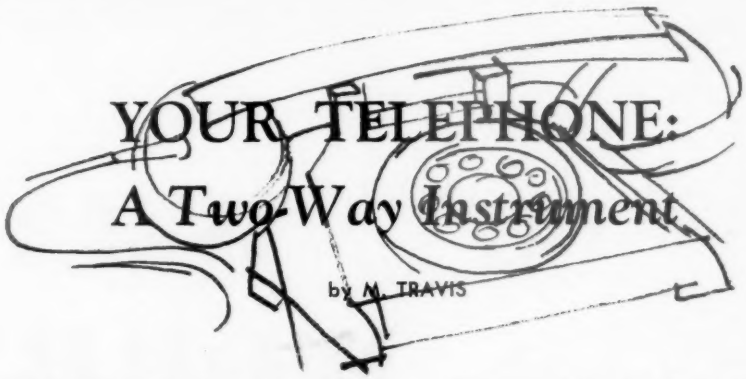
Part of the main gallery of the Libby Museum.

The United States Government has, for over 50 years, offered a reward totaling some $5,000 for information leading to any knowledge of a certain living bird, a passenger pigeon, *ectopistes migratorius,* but the reward has never been claimed. The bird got its name from its habit of migrating in vast flocks of uncounted millions of birds, probably. It was obliterated by shooting and netting, the last and greatest slaughter occurring in 1888, when thousands of barrels of carcasses were shipped to metropolitan hotels and restaurants. I do not know where the Libby Museum of Wolfeboro, N. H., accumulated this excessively rare specimen, but it has had a number of most attractive offers to sell it.

The Museum was officially founded and the building built and endowed in 1912 by Dr. Henry Forrest Libby, a dentist of Boston. Doctor Libby, an inveterate traveler and naturalist, had long accumulated specimens of all sorts of things for many years, outgrowing his home and his huge boathouse successively until he was forced to build the present structure, 125 x 60 feet. Dr. Libby died in 1935, leaving the building in perpetual trust to citizens of Wolfeboro. When the trust went bankrupt in the early 50's (it was only $5,000 in its heyday), by the terms of the donor's will the Town of Wolfeboro took over the management of it, and the selectmen were created trustees by the probate court. After being closed for two years, it was re-opened under municipal auspices in 1956. An old register gives, among other interesting names, that of Lizzie A. Borden, the celebrated putative murderess.

The structure was designed by Dr. Libby. Besides being a dentist, he was also an accomplished artist and sculptor, as well as an ingenious inventor. The museum fronted on N.H. Route 109, the prehistoric Abenaki Trail. On the east side (and joining the old Trail) is one segment of Governor Wentworth's Dartmouth College road, which he cut from Portsmouth (or more accurately, Wolfeboro) to Hanover, to the college which the governor had chartered and in which he had so much interest.

The Museum specializes in natural history, but it also has important collections of historical and prehistorical artifacts and memorabilia, and a growing fine arts department. The present director is William Carpenter of Wolfeboro.



YOUR TELEPHONE: A Two-Way Instrument

A dozen city and suburban dentists were queried recently in what survey-makers call a "spot check." The purpose was to determine the use or non-use of the telephones in their offices.

The study revealed that three out of four use the telephone almost exclusively to receive incoming calls. One practitioner claimed he and his assistant sometimes make no more than six or seven outgoing calls a week. But in two offices the telephone has been converted into an active two-way instrument of communication. And it will be the experiences of these men that will be discussed in detail here.

The most telephone-conscious dentist among those questioned has his secretary turn regularly to the telephone to set up appointments and, on occasions, to inquire about overdue bills. He estimates that upward to 60 percent of his recall notifications are now telephoned instead of being mailed. "A reminder handled in this way," he insists, "enjoys a higher degree of acceptance, and in most instances a definite appointment can be scheduled immediately for the patient."

This elimination of much of the uncertainty that goes with mailed requests that the patient "telephone for an appointment" is linked with one other important benefit. As the dentist sees it, "There is a need for more personal contact between the dentist's office and his patients. The telephoned reminders help make this possible."

The telephoned recalls of these two dentists are made by their assistants. One of the dentists, whose office is in the central city area, points out that most of these personalized reminders are directed to his women patients for the purpose of arranging appointments for themselves or for their children. The mailed notices, which he continues to use but to a lesser degree, in most instances go to the businessmen among his patients who work in the downtown section. Some of these men hold executive positions and they try to fit their dental appointments into the middle-of-the-day hours. The recall notices are sent to their offices so they will be in a position to check their calendar of business appointments before calling for dental time.

The second dentist, who practices in a residential section, offers appointments between six-thirty and nine, three evenings a week. He has developed a telephone reminder pattern that requires his assistant to put through the bulk of the calls between six-thirty and eight because most families are together at home at this time.

This dentist has been using a telephone recall method for more than a year, and inaugurated it by first asking the permission of patients to call them within six months. Except for those whose business or social routines are irregular, few objected to the telephoning idea. This plan resulted in the addition to his patient records of individual telephone numbers that already has provided a secondary benefit. When the dentist was taken ill last winter and was confined to his bed for several days, his assistant was equipped to call all those who had appointments for these days.

Before his assistant made her first recall by telephone, the dentist dicated an outline for her to follow in talking with patients. This was phrased to save the caller's time as well as that of the patients.

The dentist who commented on his use of the telephone as a collection aid emphasized that it was employed chiefly as a reminder. It also helps his assistant, who makes the calls, to determine if the patient has delayed payment for any specific reason.

As with any other change of technic that involves relations with patients, a testing period will prove the correctness of the new method. In a dental practice it is possible to try the telephone recall system on a dozen or more patients and note reactions. The practitioner will want to check on patients' acceptance of the plan, and the percentage of appointments that result from the telephoning as opposed to the mailed reminders. Of course, the cost of each is a factor that cannot be ignored.

A test that is carried out seriously and checked carefully will quickly reveal the desired answers to these and related questions. It is an experiment well worth trying.

934 North 63rd Street
Philadelphia 31, Pa.

WHY WORRY?

by KAY LIPKE

It may be because it is summer, and vacation time is at hand. It may be because we are at last gaining a little wisdom. Whatever the reason, the dentist in the family and I have decided to stop worrying and try to get a little more fun out of life.

It has suddenly occurred to us that not only are we getting older, but we look older than we really are. All because a lot of built-in tensions and fears for the future are robbing us of our peace of mind, and many of the pleasures we should be enjoying in the fast-moving present.

We have taken a long searching look into the past, and have discovered that we have spent entirely too much thought and energy in worrying and providing for emergencies which, so far, have not happened. In fact, we seem to have looked after everything except the very important business of enjoying life right now.

We have kept a very tight hold on our savings for fear there might be another Depression, or Recession, or what-have-you; and so have scrimped far more than necessary. We have bought an enormous amount of insurance of all assorted types and sizes to provide as best we could for the fearsome catastrophes which might possibly rob us of our health, or our lives.

However, the knowledge that we have this very comfortable cushion of insurance has not seemed to drive the worry wolf from our door. Through the years we apparently have formed a stubborn pattern of worry, and the goading question "What would happen if - - - ?" still can disturb us.

These days the word "relax" seems to be disappearing from the American vocabulary. There apparently is no adequate sum of money or amount of insurance which can cause a man to say, "Now we can relax and not worry over the future." Especially is this true of a dentist and his family.

Take the malpractice situation, for instance. No matter how much malpractice insurance a dentist takes out, he still is apt to worry and wonder if it is enough. The insurance companies help him worry also. They send out memos periodically to remind the dentist of the enormous number of malpractice suits, and the ease with which a suit can be instituted against a dentist—either rightly or wrongly—and won!

So dentists worry over malpractice, high overhead, whether to move or not to move their offices and where, how to speed up collections, and all the varied problems of a dental career.

Meanwhile, we wives worry about our dentists. And we worry that we aren't fulfilling our responsibilities as their wives in the community. In the meantime, the priceless hours—days—months—and years go clicking by, for all of us, and we haven't had a fraction of the fun we could have.

Well, this dental family is going to try to stop worrying. We are going to laugh more, relax more, and perhaps just do nothing a little more. We are sick and tired of fretting about a future which is turning into the present at a rapid rate, and then disappearing into yesterday to be gone forever. If we don't enjoy life today, when can we enjoy it?

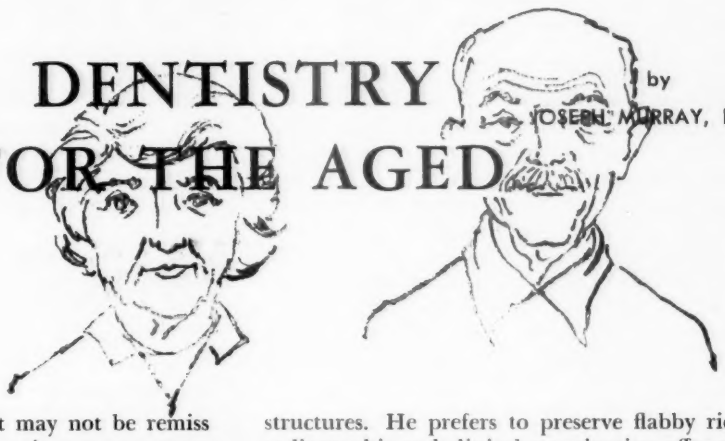
Right now we are climbing into the car for a vacation trip, happy to get away from home and office responsibilities for a while. En route, we hope, to recapture the sheer joy of just being alive!

1993 Lucile Avenue
Los Angeles 39, Calif.

Part 2 of a four-part series

DENTISTRY FOR THE AGED

by JOSEPH MURRAY, D.D.S.



Because of its importance, it may not be remiss at this time to reiterate that the aging process causes the mucosa to lose its elasticity and to appear shiny and pebbly.

The patient who has passed her menopausal period will often ask, "Why do I have a burning of the tongue and lips, doctor? And why do I have a sour or salty taste?"

Views of Dr. Jamieson

Dr. Charles H. Jamieson answers these questions with the observation that 80 percent of such women present these complaints, often associated with a decrease in salivary flow, causing a dry mouth. A combination of these conditions may well create tenderness which makes wearing a removable denture unbearable.

Because the atrophy of oral structures in aging is progressive and the gradual change in the supporting bone induces the closing of jaw relations, strained temporomandibular structures and shifting of the denture bases on their foundations, our senior citizens find themselves in a constant dilemma.

Often the early loss of posterior teeth without replacement and dependence upon the anterior dentition for function during advancing years causes premature contact and early loss of the anterior teeth, especially in the maxillary dentition, with a resultant breakdown of the upper anterior ridge. Also, to minimize resorption of bone, the static position of the mobile ridge must be maintained by careful impression technics.

Dr. Jamieson notes that a diagnostic problem for the aged is the removal of hyperplastic tissue from ridges and peripheral structures. He prefers to preserve flabby ridges if radiographic and clinical examination offer no contraindication; and, certainly, if excision would result in loss of retention.

On the other hand, should peripheral border overextension cause the formation of folds of hyperplastic tissue (commonly present in the buccal and labial vestibules) especially if there is routine interference with the seating of the denture, then surgical removal of the mobile tissue as well as any irritating bone spicules must be removed.

In addition, the border of the old denture should be corrected and the denture worn during healing to prevent the unfavorable reattachment of the mucosa.

Palatal hyperplastic tissue, nodular in appearance and usually found under ill-fitting dentures lacking contact, can also be a source of concern to the geriatric patient and his dentist. In this case, Dr. Jamieson feels that with the construction of a well-fitting restoration the hypertrophy may diminish and that surgery will not be necessary.

"Fitting" the Personality

As for the psychological aspects of senescence, Dr. Jamieson has aptly written: "Fitting the personality of the aged patient is often more difficult than fitting the denture to the mouth."

Mental quirks, character deficiencies, vague pains and annoyances are often exaggerated in the aged. Instead of being dismissed as a neurotic, the elderly patient should be treated with patience and understanding, because the fixed habits and ideas of a lifetime cannot be casually discarded and exchanged for a new mode of living.

For example, Dr. Jamieson ad-

monishes that a patient who has worn dentures for a long time may object to the increased vertical dimension of corrective replacements because the new ones cannot be juggled around as readily as the ill-fitting dentures.

And, with further aging, cerebral accidents of varying degrees may result in a decreased neuromuscular coordination. Difficulties in chewing, swallowing, and speaking may ensue as a result of this disturbance of normal function.

At this time, the insertion of new dentures may be an added source of annoyance instead of a corrective measure. Thus, an evaluation of the patient's ability to accept major improvements in function determine how far we can go toward the ultimate in correction, says Dr. Jamieson. And the older patient may very well require a longer period of training and adjustment.

Nutritive Failure

That nutrition influences the aging process is a factor with which medical authorities agree. As a matter of fact, there is a definite correlation between what and how a man eats and how long he lives. Dr. E. J. Stieglitz, former president of the Academy of Geriatrics, once said: "We are what we are today because of our yesterdays."

With an impaired masticatory function, then, it follows that there will be nutritive failure. This leads to boredom and loss of interest in daily living. Poor nutrition is also conducive to obesity and a shorter life span.

A study of more than 20 typical homes for the aged showed that the menus were deficient in vitamin C, so important in maintaining healthy oral tissues.

Research has also revealed that exercise and restriction of calories will delay the aging process.

It has been established that women can maintain their weight on a daily caloric intake of 1,500 calories or less; men, on 2,000 calories. The amount should be reduced five to seven percent for each decade past the age of 25.

It has also been ascertained that many older persons develop fixed eating habits and frequently exclude all solids from their menus because of missing teeth or ill-fitting dentures.

Dr. Jamieson feels that low tolerance to biting stress presents difficulties for the denture patient, tempting him to swallow larger and coarser food masses, or to choose softer foods requiring no chewing. Thus, a tea-and-toast diet results in widespread malnutrition when meat, vegetables and dairy products are not ingested daily.

Since fat is stored in the body and more slowly digested, its intake should be decreased with age; while protein, which is not stored, should be eaten every day.

It is obvious, then, that a sound nutritional program will do much to maintain the physical vitality and nervous stability of the senescent patient.

The Complete Denture Section of the Detroit Dental Clinic Club, whose roster includes many eminent prosthodontists, has stated that the words "diet" and "nutrition" are often confused. Diet refers to foods eaten, while nutrition relates to the digestion of food elements and the building and repairing of body tissues by these digested food elements that the blood distributes throughout the body.

The group emphasizes that a good diet is a basic necessity; that the tissues cannot live on food that is fundamentally wrong; that a person may "starve" his body even though he eats what he considers good food and in sufficient amounts. Furthermore, there also must be present the proper vitamins and minerals. Besides, the body must be capable of utilizing these materials and foods properly.

1358 46th Street
Brooklyn 19, N. Y.

PART 3—NEXT MONTH

USE ELECTROMYOGRAPH IN DENTAL DIAGNOSIS?

A grant of $83,735 for research on the testing of muscles of the mouth and jaws to aid in diagnosing dental ills has been made to Northwestern University dental school by the U. S. Public Health Service. The grant, covering a period of three years, will enable investigators to determine if the electromyograph, a device to chart the action of muscles, can be used in dental diagnosis and management in much the same way an electrocardiograph is used in the field of medicine.

The work is under the direction of Dr. Stanley C. Harris, professor and chairman of the department of physiology and pharmacology at Northwestern dental school, and Dr. Harold T. Perry, instructor in orthodontics.

According to Dr. Harris, the electromyograph studies will determine the harmony with which the teeth function. It is hoped that variations in the structure of the mouth and teeth will show up in this manner long before the usual evidence of destructive changes becomes apparent.

Studies will be done on a series of patients by attaching electrodes to various muscles of the face and then charting the action of these muscles under various types of motion such as speaking, chewing, and swallowing. Electrical impulses from these muscles are transferred by the electromyograph to visible or audible graphs of muscle function.

SALOMON OF THE DENTAL CORPS

by HARRY CIMRING, D.D.S.

Ben was big, warm, and friendly with a wee bit of the pixie about him. Perhaps it was the myopic lenses that gave a wrinkly-crinkly quality to his boyish grin. Perhaps it was the contrasting size of his large six foot three plus frame. Perhaps it was the occasional evidence of the rebel in him demonstrated both at dental college and in the military service.

Captain Ben L. Salomon

But don't let the description of pixie confuse you. Only a technicality prevented him from receiving the Congressional Medal of Honor, highest award in the land; and he certainly deserved it. My remembrances of Ben were brought to mind recently by an article in *True* devoted to Captain Ben Salomon of the U.S. Dental Corps.

Ben graduated from the University of Southern California dental school in 1937, taking an interest in soccer and writing for the yearbook. Before that he had been an Eagle Scout and later a scoutmaster. He collected firearms and was interested in marksmanship and the care and repair of guns. He applied for a dental commission in both the United States and Canadian armies but to no avail. Some time later, after three and one-half years of private dental practice, he was drafted as a private and served as such another year and one-half before his commission came through.

A Free-Spoken Critic

It is understandable that Ben was somewhat peeved as a result, and he didn't hesitate to criticize some of the dentistry done at his particular army post, just as he didn't hesitate to protest some of the inequities practiced on him and others during that "rat-race" known as undergraduate dental school. It is little wonder that Ben occasionally sustained some head-bumps from the powers-that-be, both at school and in the army.

In March 1941 Ben was assigned to Company M, 102nd Infantry at Monterey, Calif. After Pearl Harbor, the outfit was transferred to bleak, barren Canton Island, 1,400 miles south of Hawaii, to defend it against Japanese who never came. Life there was the dreary repetition of training, training, training and little else. The monotony was broken by a series of contests in military proficiency, most of which Ben won. He was described as the best rifle shot, the best pistol marksman, the best man with the bayonet and the best machine gunner in the regiment. He is said to have been able to strip, clean, and reassemble any weapon in the arsenal faster than any man in the regiment and almost as fast blindfolded. He become sergeant of the machine gun section.

When his dental commission came through, it was addressed to his civilian address in Los Angeles and was forwarded. By this time he had become addicted to the infantry and he simply declined the offer. The War Department, with understandable firmness, sent a second, tougher letter. This time his company commander tried to secure an infantry commission for him, but failed.

In August 1942 Ben became regimental dentist with the 105th Infantry in Hawaii. Except for a tour of duty in the British Fanning Islands, where he did dentistry for the natives, he pursued a most unusual career with the 105th. He took care of the dental needs of his charges each morning but converted into an infantry instructor each afternoon. In all proficiency competitions, the winner was always the regimental dentist.

At Saipan

The 105th landed on Saipan in June 1944. On June 22 the surgeon of the 2nd Batalion was seri-

ously wounded and Captain Salomon volunteered to replace him. His training in dental school, in scoutcraft, and in first aid now stood him in good stead. By July 4 the Japanese at Nafutan Point were in dire straits. Less than one-third were now alive. They lacked artillery, tanks, communications, arms, food and medical supplies. Their commander, General Saito, realized the futility of their position. He therefore planned one last glorious banzai attack on the Americans.

On July 6, General Saito summoned his total manpower, distributed what little food and drink was available, and then proceeded to exhort them to follow him in battle and to eternity for the glory of the Emperor. As it turned out, he did not lead his troops at all. Instead, with his very illustrious guest, one Admiral Chichi Nagumo (non other than the commander of the force that bombed Pearl Harbor on December 7, 1941, and whose fleet was subsequently defeated at Midway), he returned to his headquarters cave. After a ceremonial meal, both committed hara kiri. Nonetheless, some 5,000 Japanese attacked American positions on the morning of the seventh.

24 Wounds—98 Dead

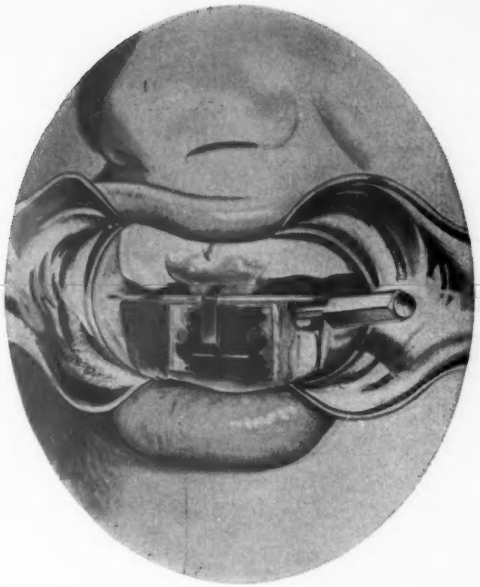
At his battalion aid station, Ben busied himself with the wounded. These increased in numbers quite rapidly. Things came to a head when the Japanese soldiers attacked his tent. He defended himself with rifle butt, bayonnet, and knife like a man possessed. When he went outside, he saw that all the machine gunners were dead and he immediately grabbed the nearest gun and started firing. The enemy kept coming and he kept firing. He moved his gun four times because so many bodies had piled up to hide his field of fire. By the time his life ebbed out he had been wounded 24 times—and he had killed 98 Japanese. Saipan had been his first and last battle.

When the recommendation for a posthumous Congressional Medal of Honor for Ben reached the general's desk, he wrote:

"I am sorry that I cannot approve this award. At the time of his death, this officer was in the medical service and wore a Red Cross brassard on his arm. Under the rules of the Geneva Convention, to which the United States subscribes, no medical officer can bear arms against the enemy."

240 S. La Cienega Blvd.
East Beverly Hills, Calif.

HOW'S YOUR BITE ?



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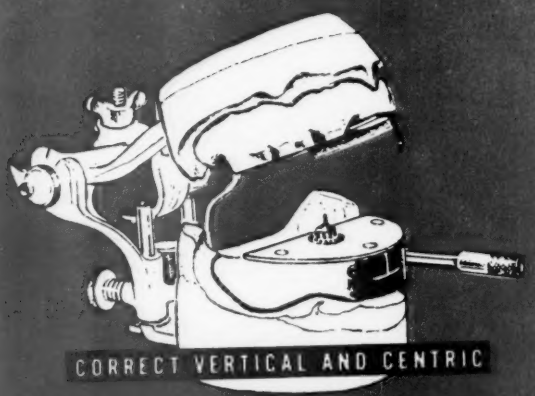

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